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10 **TITLE: PERSONAL LOAD BEARING DEVICE**

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BACKGROUND OF THE INVENTION

20 The present invention relates to personal load bearing devices that aid in the carrying and holding of cargo. More specifically, the present invention relates to a device that attaches to a person's belt, assists in the carrying of various kinds of cargo, and takes stress off of the arms of the user, while helping to stabilize cargo which is being held or transported.

25 People are often required to carry and hold heavy or bulky boxes and various other items. Sometimes the cargo carrying activity is personal, for example carrying bags and boxes. This presents a particularly severe problem for elderly and handicapped people. Other times, what is required is job-related, as in the case of merchandise warehouse employees, post office workers, painters, construction workers, delivery personnel, etc. The cargo to be carried may often be heavy, cumbersome, or both. The cargo therefore is difficult to control and may require use of both upper extremities to avoid dropping of the cargo. Furthermore, the cargo often times must

be set down by the cargo handler, in order to free up a hand for other activities such as opening a door, automobile trunk, or pressing an elevator button. Moreover, holding and carrying such objects is stressful to a person's arm muscles and back muscles. Furthermore, a person handicapped by a neurologic or orthopedic injury may have only one functional upper extremity.

5 These factors limit the size, weight, and distance that a package can be carried. Many different types of cargo may need to be carried, including boxes, pipes, paint cans, or shopping bags with handles. An ideal personal load bearing device would be comfortable to wear and would be versatile enough to assist in carrying many different types of cargo.

10 There have been previous attempts to solve this problem. Many of the devices created to assist in load bearing unfortunately do not take into account the natural biological concave curve of the pelvis. Most have relatively sharp flat upper and lower edges that jab into the user. Use of such load bearing devices will get extremely uncomfortable for the cargo handler over time and also wear upon the handler's clothing. Other devices require the use of pads to prevent pressure
15 on the pelvic area. Such pads are bulky, or may come loose, or may wear out over time. Still others are so wide that the cargo handler could not sit down or bend without first removing the device. This is a disadvantage as many delivery persons have to frequently get in and out of a vehicles during the course of a day's work. Furthermore, the personal load bearing devices in the prior art have the disadvantage that cargo can slide into the handler's side during transportation,
20 because there is no guard at the top of the cargo carrying surface. Another disadvantage of the personal load bearing devices disclosed in the prior art is that the clip attaching the device to the handler's belt is at or below the cargo support surface. This is not ergonomic and results in a fulcrum which places increased leverage stresses on the cargo handler's belt and body.

25 The following are indicative of problems with the prior art: Roberts discloses a device for carrying loads in U.S. Patent No. 5,826,763. Roberts' device is upside down "L" shaped with nothing to guard the user's side from the cargo and there is a large cumbersome pad. Robert's device, as some others, is complicated and expensive to manufacture. U.S. Patent No. 4,319,704 to Rosen discloses another "L" shaped device with no guard. Rosen also is indicative

of the prior art devices that have straight vertical members that are non-anatomic with a straight sharp lower edge. Another disadvantage of previously described devices is that they may help with carrying a box, but are useless for pails with handles or shopping bags. For example, U.S. Patent No. 5,511,707 to Reichart discloses a non-versatile device that can accommodate the corner of a box, but is not suited for hanging a handle of a bag or nor handle of a pail thereon. Reichart's device is also substantially "L" shaped and the cargo carrying surface is above the level of the means of attachment to the user's belt. A fulcrum is thus formed which results in discomfort to the cargo handler. Load bearing of the cargo surface will cause the lower end of the device to forcibly rotate into the handler's side. The present invention is designed to overcome these various shortcomings of the prior art.

SUMMARY OF THE INVENTION

It is accordingly an object of the present invention to provide a personal load bearing device comprising a convexly curved vertical member wherein the vertical member will comfortably conform to the natural anatomic concave curve of the human ilium bone.

Another object of the present invention is to provide a personal load bearing device that can accommodate many different types and shapes of cargo. The device can therefore be used by a wide diversity of people for a wide variety of purposes. Such a device would be useful not only in the handling of boxes, but also be useful for bags and pails with handles, as well as construction materials, for example lumber and pipes.

Still another object of this invention is to provide a personal load bearing device that is simple and inexpensive to manufacture.

It is yet another object of the present invention to provide a personal load bearing device wherein a multiplicity of the devices can be attached to one belt. The devices can be stacked in proximity, one against the other, and thus increase the load bearing surface.

Another object of the present invention is to provide a personal load bearing device wherein a guard is formed at the top of the cargo carrying surface thus preventing cargo from sliding into the cargo handler from the cargo support surface of the cargo carrying device.

5 It is yet another object of the present invention to provide a personal load bearing device wherein the cargo carrying surface is positioned below the means of attach of the device to a belt. This would be more ergonomic, improving the mechanics of distribution of load upon the wearer's belt, and improving comfort.

10 Finally, another object of the present invention is to help prevent cargo from sliding off of the cargo support surface during handling.

The objects of the present invention are accomplished by conforming the shape of the vertical member of the device to match the anatomic concave curve of the underlying ilium bone
15 of the pelvis. Furthermore, in the preferred embodiment of the present invention, the cargo support member of the device is not perpendicular to the vertical member. Rather, the cargo support member of the device is angled upwards and away from the upper part of the vertical member, resulting in an acute angle being formed between the lateral side of the vertical member and an uppermost surface of the cargo support member. This permits the edge of a box to rest in
20 the angle formed by the intersection of the vertical member and the cargo support member. Furthermore, because of this upward slant, the cargo will naturally slide securely towards the handler by the force of gravity. It therefore takes less effort for the cargo handler to hold onto the cargo. This acute angle also provide a method to hang bags, pails, or other objects with handles onto the device. Furthermore, the upward slant of the cargo support member combined
25 with the curvature of the vertical member results in less downward pressure on the handler's belt, because downward forces are translated into a medial force dissipated over the curved vertical member into the handler's hip. Finally, because the vertical member of the present invention extends upwards past the intersection of the vertical member and the cargo carrying surface, a guard is formed which protects the handler's side from the cargo.

Still other objects and advantages of the present invention will become readily apparent to those skilled in the art from the following detailed description, wherein only the preferred embodiments of the invention are shown and described. As will be realized, the invention is capable of other and different embodiments, and its several details are capable of modifications
5 in various obvious respects, all without departing from the invention. Accordingly, the drawings and description are to be regarded as illustrative in nature, and not as restrictive.

The personal load bearing device of the present invention is comprised of a vertical member which is convexly curved on the medial side; a cargo support member upwardly angled
10 from the horizontal, thus forming an acute angle between the cargo support member and an upper segment of the vertical member; and a means for attaching the vertical member to a belt, for example, an oblong opening in the vertical member or a belt clip.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying Figures depict embodiments of the present invention, and features and components thereof. Unless specifically otherwise disclosed or taught, materials for making components of the present invention are selected from appropriate materials such as metal, metallic alloys, natural or synthetic fibers, plastics and the like, and appropriate manufacturing or
20 production methods including casting, extruding, molding and machining may be used.

Any references to front and back, right and left, top and bottom, superior and inferior, upper and lower, inner and outer, medial and lateral, and horizontal and vertical are intended for convenience of description, not to limit the present invention or its components to any one
25 positional or spacial orientation.

The foregoing objects, features, advantages and preferred embodiments of the present invention will be better understood from the following detailed description taken in conjunction with the accompanying drawings in which:

FIG. 1 illustrates an embodiment of the present invention demonstrating how it would be worn attached with a belt and used in handling cargo;

FIG. 2 is a perspective view of the left side of an embodiment of the present invention;

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FIG. 3 illustrates a perspective view of the right side of an embodiment of the present invention;

FIG. 4 illustrates a sectional view of an embodiment of the present invention demonstrating a belt passing through an oblong opening in the vertical member, the convex shape of the vertical member, and the acute angle formed where the upper segment of the vertical member intersects the cargo support surface.

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DETAILED DESCRIPTION

15 The materials for making components of the present invention are selected from appropriate materials such as metal, metallic alloys, natural or synthetic fibers, plastics and the like, and appropriate manufacturing or production methods including casting, extruding, molding and machining may be used.

20 As shown in FIG. 1, the preferred embodiment of the personal load bearing device of the present invention attaches to the belt **100** of a cargo handler. The load bearing device is comprised of a vertical member **200** which is convexly curved on the medial side, and a cargo support member **300**. In the preferred embodiment, the device attaches to the handler's belt **100** by an oblong opening **210** in the vertical member **200**.

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Referring now to FIG. 2 and FIG. 3, the preferred embodiment of the present invention is substantially "T" shaped. The vertical member **200** of the device is comprised of a convexly curved medial face **220**, a lateral face **230**, and a device body **240** there between. The medial face **220** is of a generally convexly curved shape that enables the device to comfortably conform

to the natural concave shape of the handler's ilium. The gentle generally convex curve of the medial face **220** minimizes pressure points on the skin of the hip and pelvic area of the user. When the device is being used to carry cargo, the cargo rests upon a cargo support surface **250** on an upper aspect of the cargo support member **300**. Furthermore, the upward slant of the cargo support member **300** combined with the curvature of the vertical member **200** results in less downward pressure on the handler's belt **100**, because downward forces are translated into a medial force dissipated over the curved vertical member **200** into the handler's hip.

Referring also now to FIG. 4, it can be seen that the lateral face **230** of the vertical member **200** faces away from the handlers hip or pelvis. In the preferred embodiment, the lateral face **230** is may be either flat or gently concave, however such shape is purely non-functional. Therefore, in other embodiments the lateral face **230** may be flat, convex, concave, or any other complex shape. The shape of the lateral face **230** is thus aesthetic and not crucial to the function of the device.

The device body **240** is that portion of the device that is located between the medial face **220** and the lateral face **230**. The device body **240** may vary in thickness and width among various embodiments. In the preferred embodiment, the device is made from wood or plastic, and the device body is approximately 1.25" wide and approximately 0.75" thick, thickness being that distance between the medial face **220** and the lateral face **230**. In another embodiment, the device body is approximately 0.50" wide and approximately 0.50" thick. One skilled in the art will however recognize that alternative thicknesses and widths may be utilized in other embodiments and the above measurements are by way of example and not meant to limit the scope of the invention. In the preferred embodiment, the overall size of the device is such that it may fit into a pocket or be carried in a purse.

The cargo support member **300** comprises an upper cargo support surface **250** and a lower surface **260**. A roughened or tread like surface may be incorporated onto the upper cargo support surface **250**. In the preferred embodiment, the cargo support member **300** is contiguous with the

vertical member **200**, protruding laterally from the lateral face **230**. Alternatively, the cargo support member **300** could be attached as a separate or folding appendage to the lateral face **230** of the vertical member **200**. The cargo support member **300** is located substantially below the top of the vertical member **200** of the device. This superior or upper segment of vertical member **200**, extending above the cargo support member **300**, forms a guard **280** that prevents cargo from sliding into the cargo handler and also stabilizes the cargo load. In the preferred embodiment, the cargo support member **300** of the device projects outwardly from the lateral face **230** of the vertical member **200** at an upwardly directed angle. An acute angle is thus formed at the superior lateral corner of the intersection of a line bisecting the long axis of the vertical member and a line bisecting the long axis of the cargo support member. This upward slope of the cargo support member **300**, and the associated cargo support surface **250**, is unique to the present invention, and allows the cargo handler to hang handles of bags or pails on the cargo support member **300**, while minimizing the capability of that variety of cargo slipping off of the cargo support member **300**. The upward slope of the cargo support member **300** also allows the cargo to be secured against the guard **280** by gravitational forces, thus saving the handler unnecessary energy in securely gripping the cargo. In some embodiments, the lateral most tip of the cargo support member **300** has a lip **270**. The lip **270** aids in further securing cargo with handles.

In the preferred embodiment, the device may be attached to a belt **100** by an oblong cavity **210** passing through the superior or upper aspect of the vertical member **200**. Thus, in the preferred embodiment, the cargo support surface **250** intersects the lateral face **230** of the vertical member **200**, at a point that is located inferior to the most superior extent of the oblong cavity **210**. Therefore, in the preferred embodiment, the cargo support surface **250** lines up with approximately the mid-section of the long axis of the cargo handler's belt **100**. This spatial relationship between cargo support surface **250** and belt **100** provides improved functional mechanics and ergonomics, and helps in the carrying of heavier loads with less torque on the handler's belt **100**. In alternative embodiments, the device may be attached to a belt by a variety of belt clips well known in the art. Thus, the device can be attached to a belt either by passing a belt through the device or by clipping the device to a belt.

It is contemplated that a multitude of these devices may be placed upon one belt, thereby increasing and distributing the area of support for cargo, allowing more cargo to be carried at one time, or allowing oddly shaped cargo to be better balanced.

5 The present invention may be embodied in other specific forms without departing from the essential spirit or attributes thereof. It is desired that the embodiments described herein be considered in all respects as illustrative, not restrictive, and that reference be made to the appended claims for determining the scope of the invention.